

In re Patent Application of:  
**DI BERNARDO ET AL.**  
Serial No. **09/747,786**  
Filing Date: **December 22, 2000**

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**In the Claims:**

Claims 1 to 8 (Cancelled).

9. (Previously Presented) A communication system comprising:

- a transmission channel;
- a signal source for providing a discrete signal;
- a chaotic modulator for modulating the discrete signal for transmitting over said transmission channel; and
- an incoherent discriminator for receiving the modulated discrete signal from said transmission channel.

10. (Previously Presented) A communication system according to Claim 9, wherein said incoherent discriminator comprises:

- a high-pass filter;
- a rectifier connected to an output of said high-pass filter; and
- a low-pass filter connected to an output of said rectifier.

11. (Previously Presented) A communication system according to Claim 10, wherein said incoherent discriminator further comprises a comparator connected to an output of said low-pass filter.

12. (Previously Presented) A communication system according to Claim 9, wherein said incoherent discriminator is self-synchronizing.

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13. (Previously Presented) A communication system according to Claim 9, wherein said signal source generates a low logic value signal having associated therewith a chaotic evolution corresponding to a complete Chua's attractor.

14. (Previously Presented) A communication system according to Claim 9, wherein said incoherent discriminator comprises:

a low-pass filter;

a null-threshold comparator connected to an output of said low-pass filter for providing a square-wave output signal; and

a divider connected an output of said comparator for scaling the square-wave output signal.

15. (Previously Presented) A communication system according to Claim 14, wherein said signal source generates a low logic value signal that is associated with a chaotic dynamics corresponding to a left-hand lobe of a Chua's attractor.

16. (Previously Presented) A communication system according to Claim 14, wherein said low-pass filter is a fourth order filter.

17. (Previously Presented) A communication system comprising:

a digital signal source for providing a digital signal;

a chaotic modulator for modulating the digital

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signal for transmitting over a transmission channel; and  
an incoherent discriminator for receiving the  
modulated digital signal from the transmission channel, said  
incoherent discriminator comprising

a high-pass filter,  
a rectifier connected to an output of said  
high-pass filter, and  
a low-pass filter connected to an output of  
said rectifier.

18. (Previously Presented) A communication system  
according to Claim 17, wherein said incoherent discriminator  
further comprises a comparator connected to an output of said  
low-pass filter.

19. (Previously Presented) A communication system  
according to Claim 17, wherein said incoherent discriminator  
is self-synchronizing.

20. (Previously Presented) A communication system  
according to Claim 17, wherein said digital signal source  
generates a low logic value signal having associated therewith  
a chaotic evolution corresponding to a complete Chua's  
attractor.

21. (Previously Presented) A communication system  
comprising:

a digital signal source for providing a digital  
signal;  
a chaotic modulator for modulating the digital

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signal for transmitting over a transmission channel; and  
an incoherent discriminator for receiving the  
modulated digital signal, said incoherent discriminator  
comprising

a low-pass filter,  
a null-threshold comparator connected to an  
output of said low-pass filter for providing a  
square-wave output signal, and  
a divider connected an output of said  
comparator for scaling the square-wave output  
signal.

22. (Previously Presented) A communication system  
according to Claim 21, wherein said digital signal source  
generates a low logic value signal having associated therewith  
a chaotic evolution corresponding to a complete Chua's  
attractor.

23. (Previously Presented) A communication system  
according to Claim 21, wherein said digital signal source  
generates a low logic value that is associated with a chaotic  
dynamics corresponding to a left-hand lobe of a Chua's  
attractor.

24. (Previously Presented) A communication system  
according to Claim 21, wherein said low-pass filter is a  
fourth order filter.

25. (Previously Presented) A method for  
transmitting a signal over a transmission channel, the method

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comprising:

generating a discrete signal;  
modulating the discrete signal using a chaotic  
modulator for transmitting over the transmission channel; and  
receiving the modulated discrete signal from the  
transmission channel using an incoherent discriminator.

26. (Previously Presented) A method according to  
Claim 25, wherein receiving the modulated discrete signal  
comprises:

filtering the modulated discrete signal using a  
high-pass filter;  
rectifying the filtered signal from the high-pass  
filter; and  
filtering the rectified signal from the high-pass  
filter using a low-pass filter.

27. (Previously Presented) A method according to  
Claim 26, further comprising using a comparator for a  
generating square wave signal from the filtered signal  
provided by the low-pass filer.

28. (Previously Presented) A method according to  
Claim 25, wherein the incoherent discriminator is self-  
synchronizing.

29. (Previously Presented) A method according to  
Claim 25, wherein a signal source generates a low logic value  
signal that is associated with a chaotic dynamics  
corresponding to a left-hand lobe of a Chua's attractor.

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30. (Previously Presented) A method according to Claim 25, further comprising:

filtering the modulated signal using a low-pass filter;

providing a square-wave output signal using a null-threshold comparator connected to an output of the low-pass filter; and

scaling the square-wave output signal using a divider connected an output of the comparator.

31. (Previously Presented) A method according to Claim 30, wherein the signal source generates a low logic value that is associated with a chaotic dynamics corresponding to a left-hand lobe of a Chua's attractor.

32. (Previously Presented) A method according to Claim 25, wherein the low-pass filter is a fourth order filter.